

WHAT IS CLAIMED IS:

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1. A light scanning apparatus that scans a scanned face with a light beam, comprising:

an adjusting unit that adjusts the position of a light spot of said light beam formed on the  
10 scanned face; and

a compensating unit that compensates the light intensity of said light beam at said scanned face due to change caused by the adjustment of the position of said light spot.

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2. The light scanning apparatus as claimed  
20 in claim 1, wherein

said light scanning apparatus scans said scanned face with a plurality of (N) light beams emitted by "N" light sources;

said adjusting unit further comprises at  
25 least "N-1" deflecting units located between said

light source and a scanning unit, wherein each of the  
deflecting units deflects a corresponding one of the  
plurality of light beams in sub-scan directions and  
adjusts scan line pitch.

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3. The light scanning apparatus as claimed  
10 in claim 2, wherein the deflecting units are liquid  
crystal deflecting elements.

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4. The light scanning apparatus as claimed  
in claim 2, wherein  
said deflecting unit further comprises a  
semiconductor laser and a coupling lens combined with  
20 a holder rotatable around an axis parallel to the  
optical axis of said coupling lens, the emission  
source of said semiconductor laser being eccentric to  
said optical axis.

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5. The light scanning apparatus as claimed  
in claim 4, wherein

said deflecting unit further comprises an  
aperture combined with said holder that shapes said  
5 light beam, said aperture being eccentric to the  
light path of said light beam emitted by said  
semiconductor laser and passing through the center of  
said coupling lens.

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6. The light scanning apparatus as claimed  
in claim 1, wherein said adjusting unit further  
15 comprises a liquid crystal deflecting element array  
having a plurality of liquid crystal deflecting  
elements arrayed in main-scan directions, each of  
which deflects said light beam in sub-scan directions,  
said liquid crystal deflecting element array being  
20 provided between said scanning unit and said scanned  
face.

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7. The light scanning apparatus as claimed in claim 1, further comprising a detecting unit that detects the intensity of said light beam.

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8. The light scanning apparatus as claimed in claim 7, wherein said detecting unit further  
10 detects said light beam for synchronization of light scanning.

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9. The light scanning apparatus as claimed in claim 1, wherein said compensating unit controls the radiation intensity of said light source.

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10. The light scanning apparatus as claimed in claim 1, further comprising an aperture, provided  
25 between said light source and said scanning unit,

that shapes said light beam;

wherein said compensating unit displaces  
said aperture.

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11. The light scanning apparatus as claimed  
in claim 1, wherein said compensating unit controls a  
10 transmissivity adjusting unit provided between said  
light source and said scanning unit.

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12. The light scanning apparatus as claimed  
in claim 1, further comprising a resin lens provided  
in the optical path from said light source to said  
scanned face.

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13. An image forming apparatus, comprising:  
25 a photosensitive medium; and

a light scanning apparatus that scans said  
photosensitive medium with a light beam;

wherein said light scanning apparatus  
further comprises:

5           an adjusting unit that adjusts the position  
of a light spot of said light beam formed on said  
photosensitive medium; and

a compensating unit that compensates the  
light intensity of said light beam at said  
10       photosensitive medium due to change caused by the  
adjustment of said position of said light spot.

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14. The image forming apparatus as claimed  
in claim 13, wherein

said photosensitive medium is a  
photoconductive photosensitive body; and

20           an electrostatic latent image formed by the  
light scanning is made visible by being converted  
into a toner image.

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15. The image forming apparatus as claimed  
in claim 14, wherein

said light scanning apparatus scans said  
photoconductive photosensitive body with a plurality  
5 of (N) light beams emitted by "N" light sources;

said adjusting unit further comprises at  
least "N-1" deflecting units located between said  
light source and a scanning unit, wherein each of the  
deflecting units deflects a corresponding one of the  
10 plurality of light beams in sub-scan directions and  
adjusts scan line pitch.

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16. The image forming apparatus as claimed  
in claim 13, wherein said image forming apparatus is  
a tandem type in which one or more photosensitive  
bodies that are drum-shaped or belt-shaped are  
20 provided along the path of a toner image medium, and  
a toner image formed on each photosensitive body is  
transferred to said toner image medium generating a  
composite color image.

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17. The image forming apparatus as claimed  
in claim 16, wherein four photosensitive bodies are  
provided corresponding to magenta, cyan, yellow, and  
black; or three photosensitive bodies are provided  
5 corresponding to red, green, and blue.

10 18. A method of scanning a scanned face  
with a light beam, comprising the steps of:  
emitting, by a light source, said light  
beam;  
deflecting, by a scanning unit, the emitted  
15 light beam; and  
converging, by a converging unit, the  
deflected light beam forming a light spot;  
wherein  
the position of said light spot formed by  
20 the converged light beam on said scanned face is  
adjustable by an adjusting unit; and  
the light intensity of said light beam at  
said scanned face due to change caused by the  
adjustment of the position of said light spot is  
25 compensable by a compensating unit.



19. The method as claimed in claim 18,  
wherein said adjusting unit is provided between said  
light source and said scanning unit, and adjusts scan  
line pitch of light scanning with a multi-beam  
5 scanning method.

10 20. The method as claimed in claim 18,  
wherein said adjusting unit is provided between said  
scanning unit and said scanned face, and compensates  
the curvature of a scan line.

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21. A light scanning apparatus that scans a  
scanned face with a plurality of (N) light beams,  
20 comprising a plurality of adjusting units, each of  
which adjusts the position of a scan line formed by a  
corresponding one of the plurality of light beams;

wherein at least one of the plurality of  
adjusting units is a liquid crystal element driven by  
25 an electric signal.

22. The light scanning apparatus as claimed  
in claim 21, further comprising a memory unit that  
stores said electric signal driving said liquid  
crystal element.

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23. The light scanning apparatus as claimed  
10 in claim 22, wherein said liquid crystal element  
initially adjusts the position of said scan line in  
compliance with said electrical signal stored in said  
memory unit.

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24. The light scanning apparatus as claimed  
in claim 21, wherein said liquid crystal element  
20 adjusts the position of the light beam due to change  
caused by an external disturbance.

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25. The light scanning apparatus as claimed in claim 21, said liquid crystal element being able to deflect said light beam by a micro angle.

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26. The light scanning apparatus as claimed in claim 21, wherein at least "N-1" of the plurality of adjusting units are liquid crystal elements.

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27. The light scanning apparatus as claimed in claim 26, wherein a maximum deflecting angle of each liquid crystal element is  $\pm 4.0$  (minute) or less.

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28. The light scanning apparatus as claimed in claim 21, wherein the plurality of adjusting units are liquid crystal elements of which a maximum

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deflecting angle is  $\pm 2.0$  (minute).

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29. An image forming apparatus, comprising:  
a plurality of scanned faces; and  
a light scanning apparatus that scans the  
plurality of scanned faces with a plurality of (N)  
10 light beams and forms an electrostatic latent image  
on each of the plurality of scanned faces;  
wherein said light scanning apparatus  
further comprises a plurality of adjusting units,  
each of which adjusts the position of a scan line  
15 formed by a corresponding one of the plurality of  
light beams; and  
at least one of the plurality of adjusting  
units is a liquid crystal element driven by an  
electric signal.

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30. The image forming apparatus as claimed  
25 in claim 29, wherein said liquid crystal element can

change pixel density in sub-scan directions.

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31. A light scanning apparatus, comprising  
a liquid crystal element that deflects a light beam  
from a light source to adjust the position of a light  
spot formed by said light beam on a scanned face;

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wherein the ratio of a change in  
transmissivity (%) of said liquid crystal element  
caused by the deflection to a deflecting angle  
(minute) is equal to or smaller than 2.0 (%/minute).

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32. The light scanning apparatus as claimed  
in claim 31, wherein said ratio is equal to or  
20 smaller than 2.0 (%/minute), in 10 or more ranges of  
said deflecting angle, said ranges appearing  
cyclically.

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33. The light scanning apparatus as claimed in claim 31, further comprising a detecting unit that detects the intensity of said light beam on said scanned face.

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34. The light scanning apparatus as claimed in claim 31, further comprising a compensating unit that compensates the intensity of said light beam on said scanned face.

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35. An image forming apparatus, comprising:  
a scanned face; and  
a light scanning apparatus that scans said scanned face with a light beam and forms an electrostatic latent image on said scanned face;

wherein

said light scanning apparatus further comprises a liquid crystal element that deflects said light beam from a light source to adjust the position

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of a light spot formed by said light beam on said scanned face; and

the ratio of a change in transmissivity (%) of said liquid crystal element caused by the  
5 deflection to a deflecting angle (minute) is equal to or smaller than 2.0 (%/minute).